

Amendment to the Claims

This listing of claims will replace all prior versions and listings of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

Claims 1-5 (Canceled).

6. (Currently Amended) A method of defining routes for nets in a ~~a~~ an arbitrary region of a circuit layout, wherein each net has a set of pins, the method comprising:

- a) using a first set of lines to measure length of routes;
- b) using a second set of lines to measure congestion of routes;
- c) using a third set of lines to partition the arbitrary region into a first set of sub-regions; and
- d) for each net, identifying a route that traverses a group of first-set sub-regions that contain the net's set of pins.

7. (Original) The method of claim 6, wherein the second and third sets of lines are identical.

8. (Currently Amended) A method of defining routes for nets in a ~~a~~ an arbitrary region of a circuit layout, wherein each net has a set of pins, the method comprising:

- a) using a first set of intersecting lines to measure length of routes, wherein the first set of lines defines a first set of sub-regions within the arbitrary region of a circuit layout;

b) using a second set of intersecting lines to measure congestion of routes;

c) for each net, identifying a route that traverses a group of first-set sub-regions that contain the net's set of pins; wherein each route has a set of route segments, and each route segment traverses two sub-regions in the first set of sub-regions.

9. (Original) The method of claim 8, further comprising measuring the length of each route by summing the length of each route segment in the route's set of route segments.

10. (Original) The method of claim 9, wherein using the second set of lines comprises measuring the congestion of routes across the second set of lines.

11. (Original) The method of claim 10, wherein the second set of lines define a plurality of congestion edges, wherein measuring the congestion of the routes comprises measuring the congestion of routes across the congestion edges.

12. (Original) The method of claim 11, further comprising:
once a route is completed, specifying each route only with respect to the route's segments that cross the congestion edges.

13. (Original) The method of claim 8, wherein identifying the route for each net comprises:

starting at a first-set sub-region that contains a pin of the net, successively specifying a route segment that expands the route into a new first-set sub-region until the route traverses all the group of sub-regions that contain the net's pins.

14. (Previously Presented) The method of claim 13, further comprising:

at each expansion of a route segment, computing a length cost;
for each expansion of a route segment across a second-set line, computing
a congestion cost based on the congestion of the second-set line.

15. (Original) The method of claim 13,
wherein specifying a first route segment comprises examining a plurality
of potential route-segment expansions;
wherein for each potential route-segment expansion, computing a length
cost;
wherein if the potential route-segment expansion intersects a second-set
line, computing a congestion cost based on the congestion of the second-set line.

Claims 16-20 (Canceled).

21. (Currently Amended) A computer program embedded in a computer
readable medium, the computer program for defining routes for nets in a an arbitrary
region of a circuit layout, the computer program comprising sets of instructions for:

using a first set of lines to measure length of routes;
using a second set of lines to measure congestion of routes;
using a third set of lines to partition the arbitrary region into a first set of
sub-regions; and
identifying for each net, a route that traverses a group of first-set sub-
regions that contain the net's set of pins.

22. (Currently Amended) A computer program embedded in a computer
readable medium, the computer program for defining routes for nets in a an arbitrary
region of a circuit layout, the computer program comprising sets of instructions for:

using a first set of intersecting lines to measure length of routes, wherein the first set of lines defines a first set of sub-regions within the arbitrary region of a circuit layout;

using a second set of intersecting lines to measure congestion of routes;
and

identifying for each net, a route that traverses a group of first-set sub-regions that contain the net's set of pins; wherein each route has a set of route segments, and each route segment traverses two sub-regions in the first set of sub-regions.

Claims 23-27 (Canceled).